



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/517,632 | 08/03/2005 | Markku Rajala | 43289-211375 | 5670 |

26694 7590 03/05/2007
VENABLE LLP
P.O. BOX 34385
WASHINGTON, DC 20043-9998

EXAMINER

PAK, SUNG H

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

2874

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
|--|------------|---------------|
| 3 MONTHS | 03/05/2007 | PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

| | | | |
|------------------------------|--------------------------------------|---------------------------------------|--|
| Office Action Summary | Application No. 10/517,632 | Applicant(s) RAJALA, MARKKU | |
| | Examiner Sung H. Pak | Art Unit 2874 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>12/13/04</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Information Disclosure Statement

Information disclosure statement received on 12/13/2004 has been considered.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-5, 8-11, 16-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Jansen et al (US 2001/0020372 A1).

Jansen reference discloses a preform used for pulling a fiber (title; abstract) with all the limitations set forth in above mentioned claims, including: a bulk part (portion labeled “L_R” in the Figure); and a head part attached to the bulk part (portion labeled “L_C” in the Figure); wherein the head part comprises a narrower end (portion having “d₀” in the figure); and a wider end (portion having “D”); and the wider end of the head part is connected to the bulk part (Figure); wherein a heat load directed to said preform will be distributed to the cross section of said bulk part in a predetermined manner (paragraph 0017, 0020);

wherein said head part is at least partly cone shaped (paragraph 0017);

wherein said head part and said bulk part are made of compatible amorphous (i.e. glass) materials (paragraph 0035);

wherein said bulk part comprises quartz (paragraph 0033);

wherein said head part is comprised of material such that there is adequate heat absorption (paragraph 0033);

wherein said head part and said bulk part are joined together (Figure);

wherein cross-section of said head part on the side facing said bulk part is substantially equal to the cross-section of said bulk part and the cross section of said head part opposite to said bulk part is smaller than said cross-section facing said bulk part (Figure).

Claims 20-25 are rejected under 35 U.S.C. 102(e) as being anticipated by Cook et al (US 2003/0079503 A1).

Cook reference discloses a method with all the limitations set forth in above mentioned claims, including steps of: heating a preform so that a surface of the preform is at least partly transformed to a form suitable for pulling a fiber (Fig. 2E; paragraph 0030);

directing a pulling effect to at least the transformed part of the preform (paragraph 0030);

controlling at least in the beginning of the heating process at least a part of a heat load directed to said preform by a head part comprising a narrow end and a wider end wherein the wider end of the head part is attached to the bulk part (Fig. 2E; paragraph 0030);

wherein said head part is at least partly cone shaped, which inherently allows for even heat distribution due to its 'cone shape' (Fig. 2E);

joining at least partly said head part to a bulk part of said preform (paragraph 0030);

Art Unit: 2874

wherein said step of joining precede said step of heating (paragraph 0030);

wherein said step of joining comprises melting and solidifying (paragraph 0030).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jansen et al (US 2001/0020372 A1).

Jansen reference discloses an optical fiber preform as discussed above. However, it does not explicitly teach the use of phosphate glass or fluoride glass. On the other hand, the use of phosphate or fluoride glass in optical fiber preform is well known and common in the optical fiber art. Phosphate or fluoride glass are well known to be advantageous and desirable in the art because it allows for optical fibers with good chemical durability and optimal refractive index values for efficient optical signal transmission. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the device of Jansen to have phosphate or fluoride glass preform material, in the manner claimed in the instant application.

Claims 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Russell et al (US 2004/0105641 A1) in view of Jansen et al (US 2001/0020372 A1).

Russell reference discloses a photonic crystal fiber preform having a bulk part comprising at least one non-homogenous region (Fig. 4; paragraph 0077);

wherein said at least one non-homogenous region comprises a hole (paragraph 0077, paragraph 0014);

wherein said at least one non-homogenous region comprises an amorphous material with an index of refraction different than the index of refraction of the main material used in said bulk part ('100' Fig. 4; paragraph 0077; paragraph 0082);

wherein said at least one non-homogeneous region comprises an amorphous material that is doped with rare earth (paragraph 0074).

However, Russell reference does not teach the use of a head part having a wider and narrower regions, which is connected to the bulk part such that it forms a cone-shape. On the other hand, Jansen reference explicitly teaches the use of such head part joined with a bulk part, as discussed above.

Jansen reference explicitly teaches that such arrangement is advantageous and desirable because it allows for much faster optical fiber drawing process. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the device of Russell to have a head part forming conical shape as taught by Jansen.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sung H. Pak whose telephone number is (571) 272-2353. The examiner can normally be reached on Monday- Friday, 9AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (571)272-2344. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Sung H. Pak
Primary Patent Examiner
Art Unit 2874